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| EXAMINER | |
|---|---|
| LOGIE, MICHAEL J | |

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| 2881 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/518,021 | MORISHIGE, HARUO | |
| | Examiner | Art Unit | |
| | Michael J. Logie | 2881 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-8 and 10-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10, line 2 recites dependency on claim 9, which is cancelled making claim 10 unclear and vague.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-5, 8, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochida et al. (JP 2001-296392) (submitted in IDS on 3/28/2005) and further in view of Rodgers (US 3,309,450).

In regards to claim 1, Mochida et al. teach a fiber reinforced concrete cask (fig. 1) formed by solidifying concrete (fig. 1, 12a, 12b, 12c) wherein reinforcement fiber sheets

(fig. 1, 13) are disposed at least on an outside circumference surface of said cask (fig. 1, 13 is disposed on the outside of 12a, 12b, 12c, [0014], lines 1-6), and said support frame is a cylindrical bag shape and made from reinforcement fiber sheets ([0011], lines 1-2, since the storage facility is a cylindrical type shape and 13 covers the periphery of the storage unit, said support frame is a cylindrical bag shape and made from reinforcement fiber sheets).

Mochida et al. differ from the claimed invention by not disclosing a fiber reinforced concrete cask formed by injecting concrete.

Rodgers teaches injecting into a reinforcing fibrous material (col. 2, lines 15-26).

Since both Rodgers and Mochida et al. teach reinforcing fibrous material, it would be obvious to one of ordinary skill in the art to combine the injecting method of Rodgers in the device of Mochida et al. because it would provide a low resistance flow through the cask during injection of the concrete.

The combined invention of Rodgers and Mochida et al. differ from the claimed invention by not teaching said reinforcement fiber sheets have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete.

Since Mochida et al. disclose that the purpose to effectively prevent a crack which affects the activity of the shielding, it would be obvious to one of ordinary skill in the art to have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete because this would enable the thermal expansion of concrete, bettering the resistance to cracks.

Mochida et al. and Rodgers further differ from the claimed invention by not disclosing said support frame is sewn together into a cylindrical bag shape.

Since the shape of the fibrous shield is cylindrical in shape, it would be obvious to one of ordinary skill in the art to sew the support frame together because sewing is a well-known, efficient way of joining fibers to fully support its contents.

In regards to claim 3, Mochida et al. further teach that the fiber reinforced concrete cask according to claim 1, wherein said reinforcement fiber sheets are carbon fibers ([0014], lines 1-3).

In regards to claim 4, Mochida et al. teach a fiber reinforced concrete cask (fig. 1) formed by solidifying within a cylindrical bag (fig. 1, 13) support frame formed from reinforcement fiber sheets ([0014], lines 1-6).

Mochida et al. differ from the claimed invention by not disclosing a fiber reinforced concrete cask formed by injecting concrete.

Rodgers teaches injecting into a reinforcing fibrous material (col. 2, lines 15-26).

Since both Rodgers and Mochida et al. teach reinforcing fibrous material, it would be obvious to one of ordinary skill in the art to combine the injecting method of Rodgers in the device of Mochida et al. because it would provide a low resistance flow through the cask during injection of the concrete.

The combined invention of Rodgers and Mochida et al. differ from the claimed invention by not teaching said reinforcement fiber sheets have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete.

Since Mochida et al. disclose that the purpose to effectively prevent a crack which affects the activity of the electric shielding, it would be obvious to one of ordinary skill in the art to have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete because this would allow thermal expansion of both elements, avoiding such cracks.

In regards to claim 5, Mochida et al. teach the fiber reinforced concrete cask according to claim 4, wherein said reinforcement fiber sheets are carbon fibers ([0014], lines 1-3).

In regards to claim 8, Mochida et al. differ from the claimed invention by not disclosing wherein said support frame has an injection port in the lower part of said support frame.

Rodgers et al. disclose an injection port in the lower part of a support frame (fig. 3, 15).

Since the Rodgers and Mochida et al. both disclose reinforcing fibrous material, it would be obvious to one of ordinary skill in the art to combine the injecting method of Rodgers in the device of Mochida et al. because it would provide a low resistance flow through the cask during injection of the concrete.

In regards to claim 11, Mochida et al. inherently teach a method for fabrication of a concrete cask (fig. 1), comprising the processes for: forming a support frame (fig. 1, 13, 17) for the injection of the concrete (fig. 1, 12-12c, [0023], lines 1-2), using reinforcement fiber sheets ([0014], 1-6).

Mochida et al. differ from the claimed invention by not disclosing fiber sheets having a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of concrete.

Since Mochida et al. disclose that the purpose to effectively prevent a crack which affects the activity of the electric shielding, it would be obvious to one of ordinary skill in the art to have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete because this would allow thermal expansion of both elements, avoiding such cracks.

Mochida et al. further differ from the claimed invention by not disclosing injecting the concrete into said support frame.

Rodgers teaches injecting into a reinforcing fibrous material (col. 2, lines 15-26).

Since both Rodgers and Mochida et al. teach reinforcing fibrous material, it would be obvious to one of ordinary skill in the art to combine the injecting method of Rodgers in the device of Mochida et al. because it would provide a low resistance flow through the cask during injection of the concrete.

In regards to claim 13, Mochida et al. differ from the claimed invention by not disclosing further processes comprising: filling said formed support frame with a fluid that will maintain a shape of said support frame, and injecting the concrete from the bottom of said support frame in said concrete injecting process to replace said fluid, which is pre-filled into said support frame to hold said shape with concrete.

Rodgers teaches filling said formed support frame with a fluid that will maintain a shape of said support frame, and injecting the concrete from the bottom of said support

frame in said concrete injecting process to replace said fluid, which is pre-filled into said support frame to hold said shape (col. 2, lines 15-26 and col., lines 2-10), with concrete (resin could be replaced with concrete, applying the concept to the device of Mochida et al.).

Since both Rodgers and Mochida et al. teach reinforcing fibrous material, it would be obvious to one of ordinary skill in the art to combine the injecting method of Rodgers in the device of Mochida et al. because it would provide a low resistance flow through the cask during injection of the concrete.

In regards to claim 14, the combined invention of Mochida et al. and Rodgers teach wherein said process for injecting the concrete is performed so that the tensile forces remain in said reinforcement fiber sheets of said support frame from the pressure exerted upon said sheets (it is inherent that the tensile forces remain in said reinforcement fiber sheets of said support frame from the pressure exerted upon said sheets so that the concrete will take to the shape of the cylindrical shaped fiber sheets) during said injecting process.

Claim 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mochida et al. and Rodgers and further in view of Hamby et al. (U.S. 5,814,824).

In regards to claim 2, the combined invention of Mochida et al. and Rodgers teach the fiber reinforced concrete cask according to claim 1, wherein said reinforcement fiber sheets are disposed on the outside circumference surface (Mochida et al., fig. 1, 13) of concrete cask.

The combined invention of Mochida et al. and Rodgers differ from the claimed invention by not disclosing said reinforcement fiber sheets are disposed on the inside circumference surface of said concrete cask and said reinforcement fiber sheets on said outside and inside circumference surfaces are connected with strings.

Hamby et al. teach reinforcement fiber sheets are disposed on both the outside circumference surface and the inside circumference surface of cask (fig. 3, 30, 32) and said reinforcement fiber sheets on said outside and inside circumference surfaces are connected with strings (col. 6, lines 49-63, fibers are strings, fig. 3, 31, 32, note: connection of fiber sheets through overlap).

Since both Hamby et al. and the combined invention of Mochida et al. and Rodgers teach shielding, it would be obvious to one of ordinary skill in the art to have the fiber sheets on both the inside and outside of the cask, connected by strings in the combined device of Mochida et al. and Rodgers because it would provide a sealed barrier layer on either side of the concrete that better prevents cracking.

In regards to claim 12, Mochida et al. teaches wherein said support from is made from reinforcement fiber sheets comprising an outside sheet (fig. 1, 13).

Mochida et al. differ from the claimed invention by not disclosing reinforcement fiber sheets comprising an outside sheet and an inside sheet joined together by reinforcement fiber strings in said process for forming said support frame.

Hamby et al. teach reinforcement fiber sheets comprising an outside sheet (fig. 3, 32) and an inside sheet (fig. 3, 30) joined together by reinforcement fiber strings (fig. 3,

32, 30, note: overlap of sheets, wherein sheets are made of fibers (strings)) in said process for forming said support frame.

Since both Hamby et al. and the combined invention of Mochida et al. and Rodgers teach shielding, it would be obvious to one of ordinary skill in the art to have the reinforcement fiber sheets comprising an outside sheet and an inside sheet joined together by reinforcement fiber strings of Hamby et al. in the combined device of Mochida et al. and Rodgers because it would provide a sealed barrier over either side of the concrete that better prevents cracking.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mochida et al.

In regards to claim 6, Mochida et al. teach a support frame (fig. 1, 13) for forming the concrete cask (fig. 1), wherein said support frame is made from reinforcement fiber sheets ([0014], lines 1-6).

Mochida et al. differ from the claimed invention by not teaching said reinforcement fiber sheets have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete.

Since Mochida et al. disclose that the purpose to effectively prevent a crack which affects the activity of the electric shielding, it would be obvious to one of ordinary skill in the art to have a coefficient of thermal expansion equivalent to or less than a coefficient of thermal expansion of the concrete because this would allow thermal expansion of both elements, avoiding such cracks.

Mochida et al. further differ from the disclosed invention by not teaching said support frame is sewn together into a cylindrical bag shape and made from reinforcement fiber sheets.

Since the shape of the fibrous shield is cylindrical in shape, it would be obvious to one of ordinary skill in the art to sew the support frame together because sewing is a well-known, efficient way of joining fibers to fully support its contents.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mochida et al. and further in view of Hamby et al.

In regards to claim 7, Mochida et al. teach the support frame for forming the concrete cask according to claim 6, wherein said support frame has a double walled structure (fig. 1, 13, 17) made from said reinforcement fiber sheet comprising an outside sheet (fig. 1, 13) and an inside sheet (fig. 1, 17) joined together (fig. 1, 12).

Mochida et al. differ from the claimed invention by not disclosing that the inside sheet is a fiber sheet and said outside sheet and inside sheet are joined by strings.

Hamby et al. teach the inside sheet is a fiber sheet and said outside sheet and inside sheet are joined by strings (col. 6, lines 49-63).

Since both Hamby et al. and Mochida et al. teach shielding, it would be obvious to one of ordinary skill in the art to have the fiber sheets on both the inside and outside of the cask joined by strings in the device of Mochida et al. because it would provide a barrier layer on either side of the concrete that better prevents cracking.

Mochida et al. differ from the claimed invention by not disclosing said outside sheet and inside sheet are joined by strings.

Since Mochida et al. teach concrete between the inside and outside circumference of the shield it would be obvious to one of ordinary skill in the art that the reinforcement fiber sheets on said outside and inside circumference surfaces are connected with strings because strings of atoms that make up the concrete could be designated as strings connecting the two shields.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Logie whose telephone number is 571-270-1616. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ml

Michael Logie

6-04-2007

Jack I. Berman
Primary Examiner